

# LASER™

## DOS MANUAL



**FIRST EDITION — 1986**

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**JUST WHEN YOU THOUGHT YOU WERE  
FINISHED WITH COMPUTER MANUALS FOREVER...**

**...HERE'S A WHOLE NEW ONE !**

**RATS!**

It's a frustrating feeling. All you really want to do is work with your computer, but the more parts you buy, the more boring manuals you have to go through.

**THIS ONE IS WORSE THAN MOST**

Most manuals just tell you how to hook up the component and let you get away with that. But not this one. No way. This one forces you to learn a whole new set of command statements. 21 of them. And if you don't use them precisely right, all your files will be hopelessly messed up.

**ON THE OTHER HAND . . .**

You've spent all this money for the Floppy Disk Drive, you may as well learn how to use it. And if you don't learn these commands, your Disk Drive will just sit there like a big lump of cheese.

So turn the page. See for yourself. Who knows? You may already be acquainted with most of them.

## THE DOS COMMAND STATEMENTS

DOS stands for Disk Operating System. It is a program, that acts as a filing clerk for you .....

All it really does is let you create files, store them on floppy disk and then allow you to find them again, in a hurry, with no parts missing.

To find out exactly how it does that for you, you have to read all of the following sections. Hopefully in order.

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# CHAPTER 1

## A QUICK INSTALLATION REVIEW

- ALL THE PARTS YOU NEED
- INSTALLATION OF FLOPPY DISK CONTROLLER
- HOW TO HOOK IT ALL TOGETHER

## THE PARTS YOU NEED TO EVEN BEGIN

### A) For LASER 200/310

We'll assume you have a LASER 310 or LASER 200 computer and a monitor or television set to start with. In addition, you'll need the following stuff:

- \*LASER DD 20 Floppy Disk Drive
- \*LASER DI 40 Disk Drive Controller
- \*Some blank 5.25" Floppy Disks
- \*16K or 64K Memory Expansion Unit (if your computer is 4K RAM Version)

### B) For LASER 350/500/700

We'll assume you have a LASER 350/500/700 computer and a monitor or television set to start with. In addition, you'll need the following stuff:

- \*LASER FD 100 Floppy Disk Drive
- \*LASER DI 80 Disk Drive Controller (which is already built-in LASER 700)
- \*DOS BASIC 1.0 System Disk
- \*LASER 350 computer with 64K memory expansion unit, or LASER 500/700 computer.
- \*Some blank 5.25" Floppy Disks

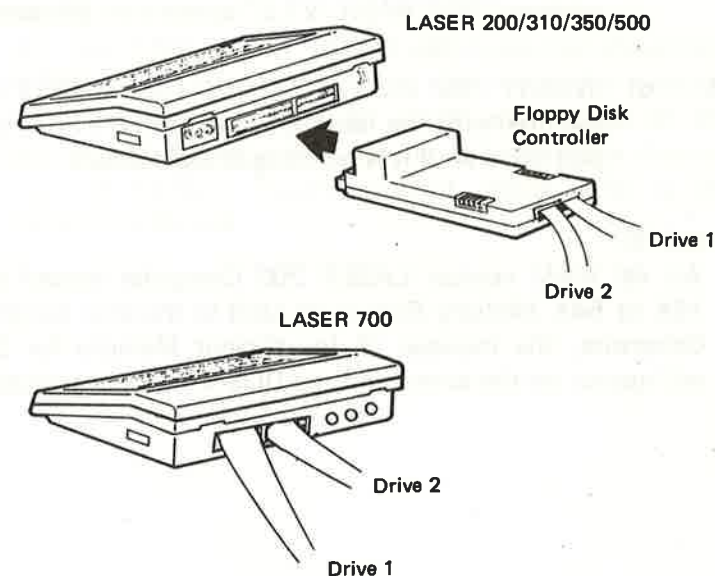
## INSTALLATION OF FLOPPY DISK CONTROLLER

The Floppy Disk Controller serves as an interface between LASER Computers and two 5.25 inch Floppy Disk Drives.

The Floppy Disk Controller is a stand-alone unit for LASER 200/310/350/500 whereas it is already built-in LASER 700 and is part of the computer.

### HOW TO GET CONNECTED

1. Turn off all power to computer.
2. Install Disk Drive with the Controller as shown in diagram.
3. Plug the Disk Controller cartridge into the system Bus on the back of your computer.



## HOW TO CONNECT IT ALL UP

### A) For LASER 200/310

- 1) *TURN OFF THE POWER TO YOUR Computer.*
- 2) *PLUG THE DISK CONTROLLER INTO THE MEMORY EXPANSION SLOT* which is located on the back panel of your computer.
- 3) *PLUG THE 16K or 64K MEMORY EXPANSION UNIT INTO the RAM Expansion Slot* which is located on the Disk Controller.
- 4) *TURN ON THE ADAPTOR TO THE DISK DRIVE.*
- 5) *TURN ON YOUR COMPUTER* The red light in the front of the disk drive will be on. Wait until the message "DOS BASIC V1.2" appears on the screen.
- 6) *INSERT THE DISK INTO THE DISK DRIVE* Insert the disk with the label up. Then turn the door on the disk drive until it is pointing straight down.

#### NOTE:

All 4K RAM version LASER 200 Computer should add a 16K or 64K Memory Expansion Unit to the Disk Controller. Otherwise, the message "? Insufficient Memory for DOS" will appear on the screen and the DOS will not be activated.

### B) For LASER 350/500/700

- 1) *TURN OFF THE POWER TO YOUR Computer.*
- 2) *PLUG THE DI 80 DISK CONTROLLER INTO THE EXPANSION SLOT* which is located on the back panel of your computer.
- 3) *TURN ON THE ADAPTOR TO THE DISK DRIVE.*
- 4) *INSERT THE SYSTEM DISK INTO THE DISK DRIVE* Insert the disk with the label up. Then turn the door on the disk drive until it is pointing straight down.
- 5) *TURN ON YOUR COMPUTER* The red light in front of the disk drive will be on. Wait until the message "DOS BASIC V1.0" appears on the screen.

#### NOTE:

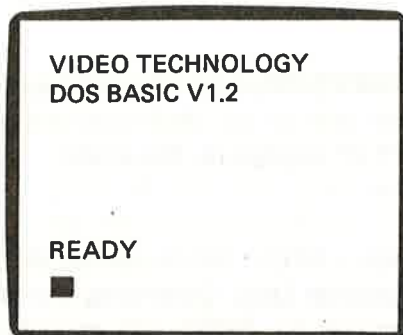
All 16K RAM version LASER 350 Computer should add a 64K Memory Expansion Unit. Otherwise, the message "? Insufficient Memory for DOS" will appear on the screen and the DOS will not be activated. For installation of Memory Expansion Unit, please refer to the Operation Manual.



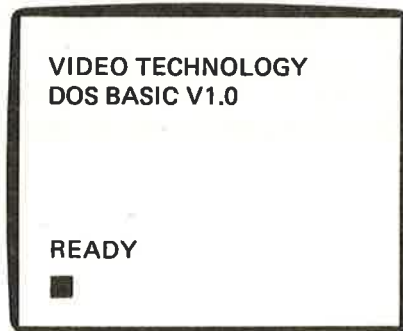
## WHAT SHOULD HAPPEN

As soon as you turn the computer on, the red light on the front of the disk drive should come on. There will be horrible noises from inside. Ignore them. That's just the disk drive head pouncing down on the disk to gather information. After all this excitement, the computer will display the following message.

A) For LASER 200/310



B) For LASER 350/500/700



## CHAPTER 2

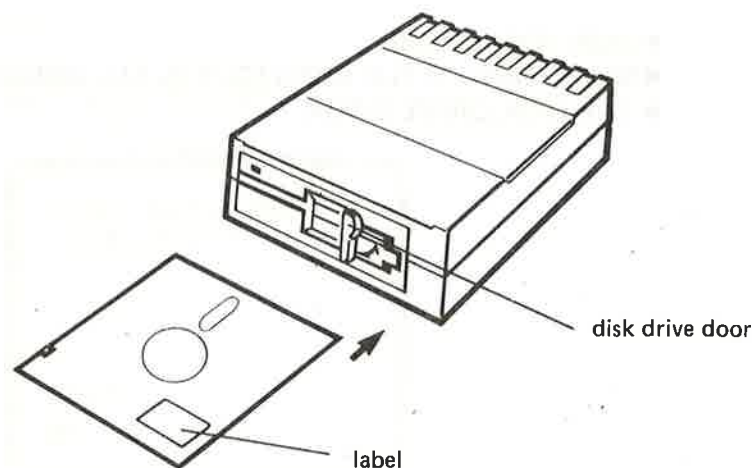
### USING THE DISKS AND THE DISK DRIVE

- DISK JOCKEYING
- WHAT THIS LITTLE RED LIGHT IS ALL ABOUT
- THE DISK DRIVE DOOR

## DISK JOCKEYING

### TO INSERT A DISK

Open the disk drive door and push in the disk so that the label goes in last. Then close the door by turning it until it points downward.

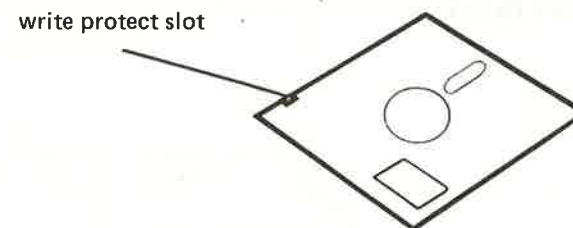


### TO REMOVE A DISK

Open the disk drive door and carefully pull the disk out of the drive. Once it is out, immediately put it back into its specially envelope to minimize the danger of dirt or dust.

### TO WRITE-PROTECT A DISK

Peel off one of the small squares of silver that comes with the disk package and attach it over the small square cut on the upper right hand side of the disk. In this way the information on the disk can be read, but nothing further can be written to that disk. This will prevent valuable programs and data from being written over.





## WHAT THIS LITTLE RED LIGHT IS ALL ABOUT

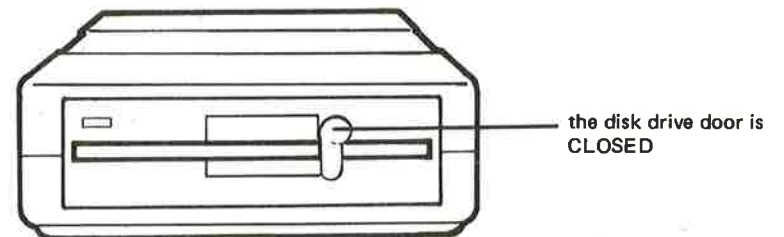
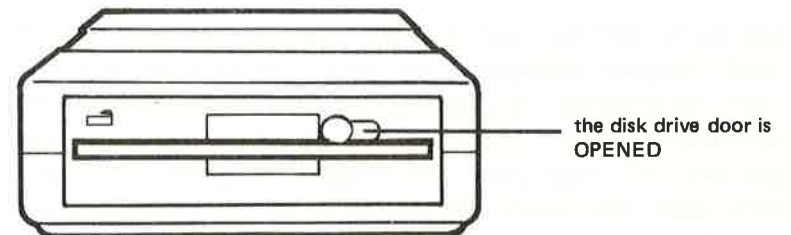
The red light on your Disk Drive, when it is lit, means the drive is in use.

NEVER, EVER REMOVE A DISK FROM THE DRIVE. WHEN THIS LIGHT IS ON. IT WILL DESTROY INFORMATION ON THE DISK AND MAY WELL DESTROY THE DISK ITSELF.

## THE DISK DRIVE DOOR

It doesn't even look like a door anymore, but that's what it's called anyway. When you close the door (turn it to point downward), the read-write head moves downward to touch the disk lightly. That's why the door must be closed in order for the disk drive to work.

On the other hand, to avoid damage to the head and the disk, the door should always be open when the drive is not in use, since this lifts the head off the disk and eliminates the danger of stationary contact.



## CHAPTER 3

### AVOIDING PROBLEMS

- WEIRD STUFF THAT CAN HAPPEN TO DISK DRIVES
- NASTY THINGS THAT CAN HAPPEN TO FLOPPY DISKS



### WEIRD STUFF THAT CAN HAPPEN TO DISK DRIVES

#### IF YOU BASH THEM

Your disk drive is a precision mechanism. If it is dropped or banged around too much, the read-write head can become misaligned. In which case it will begin acting completely crazy. And, unfortunately, the only way you will know is when you try to get the information back at at some later date and find it scrambled or missing.

#### IF YOU PUT THEM ON TOP OF YOUR MONITOR

It may seem like the ideal place to put your Disk Drive. But TV sets and monitors generate a powerful magnetic field. This can interfere with the storing and retrieving of information, which is also done magnetically. So you should keep your Disk Drive at least 2 feet away from TV sets and monitors. For the same reason you should also keep your drive unit away from printers, refrigerators, radios, stereos, telephones and just about any other electrical equipment.

## **NASTY THINGS THAT CAN HAPPEN TO DISKS**

### **IF THEY GET DIRTY**

A floppy disk is like a phonograph record. It is round, inside its square case, and is specially treated and lubricated to spin at tremendous speeds.

The read-write head of your Disk Drive hovers only a few thousandths of an inch above the spinning disk. Therefore even the slightest bit of contaminant material can become very dangerous. A fingerprint is like running into a brick wall at 90 miles an hour. A speck of dust is like running into a two story building. Encounters with dirt and dust not only destroy information on the disk, and in some cases destroy the disk itself, but can also damage the sensitive read-write head in your Disk Drive.

### **IF THE GET HOT**

If you put disks in a hot car or by a window with the sun streaming in, they will warp and melt. And that's game over for the disks and for any information you had on them.

### **IF YOU WRITE ON THEM**

When you make labels for disks, always use a felt-tip pen. It's best if you can write out the label first, and then stick it on, but if that's not possible, write very lightly. Otherwise you'll disturb the magnetic coating on the disk underneath.

### **IF THEY ARE CLOSE TO MAGNETIC FIELDS**

Any kind of electric motor and most kinds of electrical appliances generate magnetic fields which can totally scramble the information on a disk. So don't store disks near anything electrical.

## CHAPTER 4

### FLOPPY DISK TRICKS TO SAVE MONEY, TIME AND TROUBLE

- HOW TO USE BOTH SIDES OF THE DISK
- MAKING BACK-UP COPIES OF EVERYTHING

### HOW TO USE BOTH SIDES OF A DISK

On very expensive business computers you can arrange to buy disk drives which will read and write on both sides of a disk. This is why there are double-sided disks. But even with the disk drive you have now, you can utilize both sides of floppy disks and thereby cut your disk costs in half.

#### HOW TO DO IT

You'll notice on your floppy disk that there is a small square hole cut into the right hand side of the disk envelope. To enable you to use both sides, you must cut a similar hole in the other side of the disk envelope. This tells the read-write head that the disk is available for filing. If you don't cut the hole, the read-write head will assume that the disk is write-protected and will not write any files on it.

Don't worry about hurting the actual disk. It is quite a bit smaller than the envelope and does not even come close to the cut you will make.

#### SINGLE-SIDED DISKS VERSUS DOUBLE-SIDED DISKS

Single-sided disks are much cheaper than double sided disks, but there is a danger in using the second side of a single-sided disk. Disk manufacturers often make all disks to be double-sided. Those found to have one defective side are then packaged as single-sided.

If you should end up with one of these, you will get some interesting surprises. None of which will be pleasant.

The ideal solution is to use double sided disks. Both sides are meant to be used. The cost is greater, but the danger is less.

## MAKE BACK-UP COPIES OF EVERYTHING

Few beginners ever feel the need to make back-up copies of disks. Even with all the pages of warning they get about the delicacy of these things.

All it takes to convert someone is a single massive loss of irreplaceable data. That horrible moment when you realize that all those long months of hard work are totally gone, that's the moment when you see the benefits of back-up copies.

But usually not until then. No matter what anyone tells you. So it's likely not even any good at this point to tell you that even the best floppy disks have a working life of only 40 hours. You'll find out for yourself soon enough.

## CHAPTER 5

### THE COMMANDS YOU'LL USE MOST OFTEN

- INIT
- DIR
- LOAD
- RUN
- SAVE
- STATUS
- TO ACTIVATE THE SECOND DRIVE

*Maybe you really won't use them most often. But most people do. And whether you do or not, you have to learn them all to begin with anyway. So you may as well start here.*

# INIT

## WHAT IT DOES

The INIT command orders the Disk Drive to make new Floppy Disks readable and writable. And, if your computer is LASER 350/500/700, creates an operating system on your disks.

To begin with new disks are totally blank. They are just like modelling clay. When a computer wants to use a new disk, it must first carve onto the disk it's own particular style of sotring information.

The way your computer does that carving, is with the INIT commant.

## TO USE IT, YOU MUST HAVE

- 1) Computer and Disk Drive connected
- 2) The DOS activated
- 3) A blank Floppy Disk in the Disk Drive with door closed

## HOW TO TYPE IT

INIT

## WHAT WILL HAPPEN

- 1) The IN USE light will come on your Disk Drive
- 2) Your Disk Drive will go crazy for about 2 to 3 minutes.
- 3) The excitement will stop and the prompt will appear.

The disk in the drive is now formatted and will work with any DOS command.

## INIT ERASES EVERYTHING, SO WATCH OUT

If there is anything on a disk before you INIT, you can be sure of one thing. It won't be there when you finish. So don't INIT any disk until you check to see if there's anything of value on it.



## DIR

### WHAT IT DOES

It will give you an instant read-out of every file on a disk.

### TO USE IT YOU MUST HAVE

- 1) Your computer and disk drive connected up
- 2) The DOS activated
- 3) An information-bearing Floppy Disk in the Disk Drive

### HOW TO TYPE IT

DIR

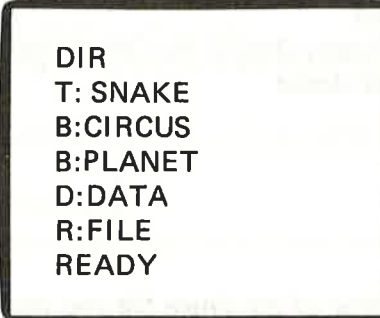
### WHAT WILL HAPPEN

#### A) For LASER 200/310

The IN USE light on your disk drive will come on. There may be a bit of horrible noise. Then a list of all the files on that disk will be printed out on your screen. When the files are listing on the screen, you can press the space bar to halt the listing. To continue the listing, just press the space bar once more. An example of what the screen looks like is shown in diagram.

#### B) For LASER 350/500/700

The IN USE light on your disk drive will come on. There may be a bit of horrible noise. Then list of up to 23 files on that disk will be printed out on your screen. To continue the listing, just press the space bar once. After all files on that disk have been printed out, the "Ready" message will reappear. An example of what the screen looks like is shown in diagram.



```
DIR
T: SNAKE
B:CIRCUS
B:PLANET
D:DATA
R:FILE
READY
```

The "T" represents that the file is a BASIC text file, the "B" shows the file is a binary one. The "D" means the file is a sequential data file, which should be handled by PR# and IN# commands. The "R" stands for a random access data file, which should be handled by WRITE, PUT, ACCPET and GET commands.

Both kinds of data file can only be accessed in program mode.

## LOAD

### WHAT IT DOES

The command LOAD permits you to LOAD one BASIC program, which has the file type code "T", from a Floppy Disk into the computer.

### TO USE IT YOU MUST HAVE

- 1) Your computer and Disk Drive all connected
- 2) The DOS is activated
- 3) A BASIC-bearing Floppy Disk in the Disk Drive
- 4) The Disk Drive door closed.

### HOW TO TYPE IT

LOAD "filename"

*filename will be the name of the single file you wish to load. The computer will accept a maximum of 8 characters in the filename. If you simply type LOAD, the computer will print a syntax error message. The file type of the file is assumed to be a BASIC text file. Loading files with other file types will result in error.*

### WHAT WILL HAPPEN

The IN USE light on your Disk Drive will go on. There will be some gronking and squawking and then the noise will stop and the light will go out. The prompt will begin flashing again on your screen and this will signify that the specific filename is now loaded into the computer.

## RUN

### WHAT IT DOES

The RUN "filename" command orders the computer to LOAD a program from disk and make it do whatever it is supposed to do.

### TO USE IT YOU MUST HAVE:

- 1) Your computer and Disk Drive all hooked together
- 2) The DOS is activated
- 3) A BASIC program SAVED in the diskette in used.

### TO LOAD AND RUN FORM DISK, TYPE

RUN "filename"

The "filename" can have a maximum character length of up to 8.

### WHAT WILL HAPPEN WITH RUN FILENAME

The red IN USE light on your disk drive will come on. There will be the usual horrible noises as the drive finds and LOADS the desired FILE. Then, when everything gets quiet again, the computer will RUN the desired FILE.

*Assuming of course that it is a BASIC program. If it isn't a BASIC program, you will get an error message which says: FILE TYPE MISMATCH . . . which more or less means:*

*"You can't fool me you silly human.  
This is not a BASIC program."*

## **WHAT WILL HAPPEN WITH RUN (WITHOUT FILENAME)**

The computer will immediately begin to run whatever BASIC program it currently has in memory.

## **SAVE**

### **WHAT IT DOES**

The SAVE command takes a specified single BASIC program from the computer and lets you store it on Floppy Disk.

### **TO USE IT, YOU HAVE TO HAVE**

- 1) Your computer and Disk Drive all connected together
- 2) The DOS is activated
- 3) AN INITED disk in the disk drive
- 4) The Disk Drive door closed
- 5) A BASIC program LOADED or typed into the computer.

### **HOW TO TYPE IT**

SAVE "filename"

### **WHAT WILL HAPPEN**

The flashing prompt on your screen will disappear. The red IN USE light on your Disk Drive will come on. Nasty noises will begin. The noise will stop. The light will go out. The flashing prompt will return to your TV screen. The file "filename" with the file type "T" has already been saved on the disk.

### **IF YOU TYPE SAVE WITHOUT FILENAME**

The computer will print a "? SYNTAX ERROR" message.

## **STATUS**

### **WHAT IT DOES**

This command allows you to know how much free space is left in the disk.

### **TO USE IT YOU MUST HAVE**

- 1) Your computer and Disk Drive all hooked together.
- 2) The DOS is activated
- 3) An INITed disk

### **HOW TO TYPE IT**

#### **STATUS**

### **WHAT WILL HAPPEN**

The IN USE light on your disk drive will come on and then turn off after a while. The screen will display the following message if a newly INITed disk is used.

- A) For LASER 200/310  
624 RECORDS FREE  
78.0K BYTES FREE

The command shows to you that you are still having 624 records (128 bytes each) in the disk to save data. Also, the equivalent number of K bytes is displayed.

- B) For LASER 350/500/700

592 RECORDS FREE  
148.0K BYTES FREE

The command shows to you that you are still having 592 records (256 bytes each) in the disk to save data. Also, the equivalent number of K bytes is displayed.

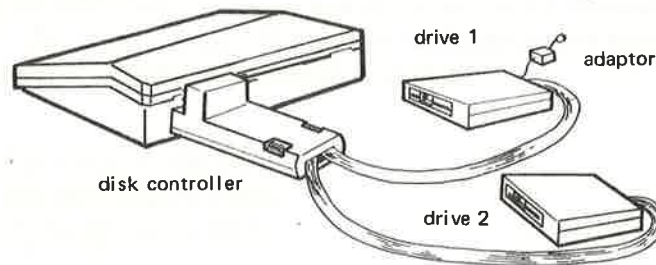
## TO ACTIVATE THE SECOND DISK DRIVE

When you turn on your computer, the computer will assume to perform disk operation on the drive 1. If you want to use the second disk drive when you have consisted it, you can activate the second disk drive by using the "DRIVE" command. To select drive 1, type  
DRIVE 1

To select drive 2, just type  
DRIVE 2

When you have selected the drive, all the disk operation will be performed on the selected drive only.

LASER 350/500



## CHAPTER 6

### THE ONES YOU'LL USE ONCE IN A WHILE

- REN
- ERA

#### WHY ONLY ONCE IN A WHILE?

*These commands are more for housekeeping than for anything else. They allow you to tidy up the files on your disk library and make maximum use of disks. Until you get down the road a bit and you won't have enough files to make organizing them worth while. And even when you do, it's not something you'll want to do very often.*

## REN

### WHAT IT DOES

Allows you to change the name of an existing file on disk.

### TO USE IT YOU MUST HAVE

- 1) Your computer and Disk Drive connected together
- 2) The DOS activated
- 3) An information bearing disk in the disk drive
- 4) The disk drive door closed
- 5) The name of the file you wish to change

### RULES FOR FILENAMES IN DOS

- 1) Must be less than 8 characters in length.
- 2) You can use any letter, number, punctuation mark.

### HOW TO TYPE IT

REN "oldname", "newname"

*Don't forget the comma here*

### WHAT WILL HAPPEN

The flashing prompt on your screen will disappear. The red IN USE light on your Disk Drive will come on. The usual noise will begin. The noise will stop. The light will go out. The flashing prompt will return.

### TO CHECK IT OUT

Type DIR. You will immediately know whether your change has been made correctly.

## ERA

### WHAT IT DOES

The ERA command totally deletes a specified file from a disk.

### TO USE IT YOU MUST HAVE

- 1) Computer and disk drive connected together
- 2) The DOS activated
- 3) An information-bearing disk in the disk drive
- 4) The disk drive door closed
- 5) The name of the specific file you wish to ERASE

### HOW TO TYPE IT

ERA "filename"

### WHAT WILL HAPPEN

The prompt on your TV screen will disappear. The red IN USE light on your disk drive will go on. You will get the usual noises. Then the noise will stop, the light will go out and the flashing prompt will return to your screen.

The file called filename will be totally gone forever from the disk.



# CHAPTER 7

## THE ONES YOU'LL SELDOM USE

- BSAVE
- BLOAD
- BRUN

### WHY SELDOM?

*These commands are for binary-language programs. But not just any binary-language programs. Only for the ones you write yourself. You can't BSAVE, BLOAD or BRUN any others. Unless you happen to know the memory starting and the ending address.*

## BSAVE

### WHAT IT DOES

The BSAVE command orders the computer to SAVE to disk from computer memory, a single Binary program with the file type "B".

### TO USE IT YOU MUST HAVE

- 1) Your computer and disk drive connected together
- 2) The DOS activated
- 3) AN INITED disk in the disk drive
- 4) The disk drive door closed
- 5) The name of the program to be BSAVED
- 6) The starting memory address
- 7) The ending memory address

### HOW TO TYPE IT

- A) For LASER 200/310  
BSAVE "filename", SSSS, EEEE
- B) For LASER 350/500/700  
BSAVE "filename", &HSSSS, &HEEEE

Where SSSS is the starting address of the file in Hexadecimal number, EEEE is the ending address of the file in Hexadecimal number. Again, the filename can have a maximum of 8 characters in length.

## WHAT WILL HAPPEN

The flashing prompt on your screen will disappear. The red IN USE light on your disk drive will go on. Noise will begin, as usual. Then the noise will stop, the light will go out and the flashing prompt will reappear on your screen.

The Binary program FILENAME with the file type "B" will have been BSAVED to disk.

## BLOAD

### WHAT IT DOES

The BLOAD command orders the computer to LOAD a single Binary file from the disk to the computer.

### TO USE IT YOU MUST HAVE

- 1) Your computer and disk drive connected together
- 2) The DOS activated
- 3) A disk with a Binary file in the disk drive
- 4) The disk drive door closed
- 5) The name of the Binary file which you wish to BLOAD

### HOW TO TYPE IT

BLOAD "filename"

### WHAT WILL HAPPEN

The flashing prompt will disappear. The red IN USE light on your disk drive will go on. You'll get some of the same old noise. Then the noise will stop, the light will go out and the flashing prompt will reappear on your screen.

The Binary program FILENAME will have been BLOADED from the disk into the computer, starting at the address SSSS which is specified by the BSAVE command.

## **BRUN**

### **WHAT IT DOES**

The BRUN command BLOADS a specified Binary program from disk to computer and then executes it.

### **TO USE IT, YOU MUST HAVE**

- 1) Your computer and disk drive connected together
- 2) The DOS activated
- 3) A disk containing a binary program in the disk drive
- 4) The disk drive door closed
- 5) The name of the Binary file you wish to BRUN

### **HOW TO TYPE IT**

BRUN "filename"

### **WHAT WILL HAPPEN**

The flashing prompt on your screen will disappear. The red IN USE light on your disk drive will come on. That old familiar noise will begin. Then the noise will stop, the light will go out and the Binary program FILENAME will be BLOADED into the computer. The computer will then do a machine language jump to the memory starting address of the Binary program FILENAME and the program will begin to RUN.

## **CHAPTER 8**

### **USING THE DOS COMMANDS WITHIN A PROGRAM**

## USING THE DOS COMMANDS WITHIN A PROGRAM

### WHAT IT IS

Very often it is useful to be able to execute a DOS command within a BASIC program. For example, you may wish your program on a disk to print out the contents of the disk by doing a DIR command. Many DOS commands can be executed inside a BASIC program.

### YOUR PROGRAM MAY BE

```
10 PRINT "LASER COMPUTER PROGRAM"  
20 DIR
```

## CHAPTER 9

### DATA FILES

- WHAT SEQUENTIAL FILES REALLY ARE
- WHAT RANDOM ACCESS FILES ARE ALL ABOUT

*You may not have noticed it, but so far, all the DOS commands we've covered deal only with programs. With BASIC programs or with Binary programs. In some cases we've called them files, but in fact, it's been only programs we've been talking about.*

*One of the big benefits of a disk system over a cassette storage system is that you can now begin to create files which are not programs. But words, the data files.*

*You can have, on tap, facts for reference. You can write poetry. But if you intend to do much more than this, you'll find that a ready-to-run word-processing program will be far easier to work with.*

## **WHAT SEQUENTIAL FILES REALLY ARE**

Sequential files are data files. As the name suggests they are put down in a sequence, and once put down, are virtually carved in granite.

Every data file has a RETURN at the end, but in sequential files, the RETURN is a character rather than a procedure. The next line of text begins immediately after the return and there is no room to add anything or take anything away.

It is possible to add stuff and delete stuff from sequential files, but it is very painful to do so and often more trouble than it is worth.

### **SO WHAT GOOD ARE SEQUENTIAL FILES?**

Sequential files are good for reference material that isn't likely to change. Things like the Ten Commandments, LATIN tenses and scientific laws.

But even trying to write anything as complicated as a very short letter becomes difficult and time-consuming.

In fact many people believe that sequential files are totally useless. But perhaps you'll be the one to prove them wrong.

## **WHAT RANDOM ACCESS FILES ARE ALL ABOUT**

A random access file is a data base. It is like one of those wheels of file cards. Each card is the same size, but you can look at the information on any particular card without having to look through the entire file.

When you create the random access file, you have to specify how big the file cards will be. Each of these filecards are called RECORDS. You determine how large each RECORD is to be by specifying the length in bytes when creating the file. The thing to remember here is that one byte is one character. And spaces count as one byte, too.

Since every file card is the same size, regardless of what is inside, and some may have nothing, random access files aren't the most efficient use of space on a disk. But the fact that you can retrieve and modify any part of the file very quickly more than offsets this problem.

### **SO WHAT GOOD ARE RANDOM ACCESS FILES?**

Super for mailing lists and telephone directories.

# CHAPTER 10

## DATA FILE COMMAND

- OPEN
- CLOSE
- PR#
- IN#
- WRITE
- PUT
- ACCEPT
- GET

*The funny part of these data file commands are that now, when you can finally begin to make files which are not programs, most of the data file commands will not work unless they are used from within a program.*

## OPEN

### WHAT IT DOES

The OPEN command lets you create or retrieve text files. This is applicable to both Sequential files and Random Access files.

### TO USE IT YOU MUST HAVE

- 1) Your computer and disk drive connected together.
- 2) Your DOS booted.
- 3) An INITed disk in the disk drive, if creating (Or a disk with a text file on it, if retrieving).
- 4) The disk drive door closed.
- 5) The name of the text file you wish to create/retrieve (And for a Random Access file, the length of each file card, in bytes or characters).

### HOW YOU TYPE IT

For sequential files:

To OPEN the file for IN# , type  
10 OPEN "filename", 0

To OPEN the file for PR# , type  
10 OPEN "filename", 1



For Random Access files:

10 OPEN "(FILENAME)", LXXXX

Where XXXX is the length of each file record in bytes.

For Random access files, L must be used. The L (length) parameter specifies the record length of a random access text file. Each time you use a particular random access text file, you must open with the same L value. The computer then uses that value to calculate the starting position of any specified record. If the L value used is different from the L value you used in creating the file, you will get the error message:

#### ? WRONG RECORD SIZE IN LINE XX

The L value must be in the range 1 to 32767. The error message

#### ? ILLEGAL PARAMETER IN LINE XX

will be generated if your L value lies outside the above range.

The reason for the line number 10 is that OPEN must always be used from inside a BASIC program. If it is typed with no line number, you will get the error message:

#### ? ILLEGAL DIRECT

#### WHAT WILL HAPPEN

For Sequential text files:

- 1) The system prepares itself to READ from the first byte of the file and WRITE to the last byte of the file.
- 2) If the file "filename" does not exist on the disk, the file "filename" will be created.
- 3) If the file "filename" is found on the disk, the computer verifies the length of record stored on the disk to the L value typed.

#### NOTE:

- 1) Only 2 files can be OPENed for read or write at the same time.
- 2) You should make sure not to open a file in drive 1 and then switch to drive 2. This will make you lose data of the file.
- 3) Once you have opened one or two files for read or write, you should CLOSE the files before using any other DOS commands (except those data file commands eg. PR#, WRITE, GET, etc). This is to avoid overwriting of the disk buffer by other DOS commands.

For example:

```
10 OPEN "TEST", 1
20 PR # "TEST", 10
30 CLOSE "TEST"
40 DIR
```

## CLOSE

### WHAT IT DOES

The CLOSE command tells the computer that the read or write operation of the file "filename" is finished.

NOTE: Any file which has been OPENed must be CLOSEd. Otherwise all the data will be lost forever.

### TO USE IT, YOU MUST HAVE

- 1) Your computer and disk drive connected together.
- 2) The DOS activated.
- 3) AN INITED disk in the disk drive with data files WRITING on it.
- 4) The disk drive door closed.
- 5) The name of the data file which you wish to CLOSE.

### HOW TO TYPE IT

CLOSE "filename"

The command can be used for both sequential and random access files. Also, it can be used directly, with no need for a BASIC program.

10 CLOSE "filename"

This format is used when in BASIC program.

## PR#

### WHAT IT DOES

The PR# command works for sequential files only. It does the same job as SAVE, within a BASIC program and as soon as the program encounters the PR# command, instead of printing data to the monitor or TV set, it sends them to the file with a name of "filename" on the disk which has been OPENed. The PR# command cannot be used unless it is preceded in the program by an OPEN command.

### HOW TO TYPE IT

20 PR# "filename", D1, D2, D3, D4, . . . Where D1, D2, D3, D4 . . . are data to be saved onto the data file. The data can be string or numerics.

## IN#

### WHAT IT DOES

The IN# command works for sequential files only. It acts somewhat like a LOAD, but is a bit different. As soon as the computer encounter the IN# command in a BASIC program, it automatically goes to the specified disk file to get the information.

### HOW TO TYPE IT

20 IN# "filename", A\$, B, C\$, D

*Where A\$, C\$ are the variable names for the strings. B, D are the variable names for the numerics.*

#### NOTE:

The sequence of the data type, ie, strings or numerics, saved in the data file by the PR# commands MUST match with the sequence of the data type readed by the IN# command.

For example, if the data is saved in the following sequence.

```
10 OPEN "DATA",1
20 PR# "DATA", 120, "TABLE", 200, "TABLE 2"
30 CLOSE "DATA"
```

The IN# command must be arranged as

```
100 OPEN "DATA", 0
120 IN# "DATA", A, A$, B, B$
130 CLOSE "DATA"
```

## WRITE

### WHAT IT DOES

The WRITE command is used for random access fiels only. It declares the starting location in the OPENed disk file where we wish to PUT new data.

### HOW TO TYPE IT

20 WRITE "filename", XXXX, YYYY

Where XXXX is the number of the RECORD in the file you want to write to, and YYYY is the number of character (or byte) in the record to be written.

Obviously, the value YYYY must not exceed the size of a record (i.e. the L value). Again, the XXXX value must be in the range 1 to 32767.

## PUT

### WHAT IT DOES

PUT is a random access file command. It does the same job as SAVE and as soon as the BASIC program encounters the PUT command, it sends the data to the file "filename" on the disk. PUT cannot be used unless it is preceded in the BASIC program by an OPEN and WRITE statement.

### HOW TO TYPE IT

```
20 PUT "filename", D1, D2; D3; D4 . . .
```

Where D1, D2, D3, D4 . . . are the data to be saved onto the data file. The data can be strings or numerics. Note that the data may be separated from each other by commas or semicolons. The computer saves a ' ' whenever it encounters a comma while semicolons tells the computer to save the data one after one without inserting a ' ' in between.

## ACCEPT

### WHAT IT DOES

ACCEPT is another random access file command. It declares the starting location in the OPENed file where we wish to GET new data.

### HOW TO TYPE IT

```
20 ACCPET "filename", XXXX, YYYY
```

Where XXXX is the number of the RECORD in the file you want to refer to, and YYYY is the number of character (or byte) in the record to be read.

Again, as in the WRITE command, the value YYYY must not exceed the size of a record. XXXX should be in the range 1 to 32767.

## GET

### WHAT IT DOES

The random access file command GET acts somewhat like a READ in BASIC, but is a bit different. The GET makes the computer look up the value of its variables from the disk file "filename". The start of the data list must be declared by an ACCEPT statment before the GET statement is enouchntered. If te GET runs out of data you will get '? OUT OF DATA ERROR'.

### HOW TO TYPE IT

20 GET "filename", A\$, B\$, C, D

Where A\$, B\$ are the variable names for strings. C and D are the variable names for the numerics.

#### NOTE:

The sequence of the data type, ie, strings or numerics, saved in the data file by the PUT commands MUST match with the sequence of the data type read by the GET command.

For example, if the data is saved in the following sequence.

```
10 OPEN "FILE", L40
20 WRITE "FILE", 20, 1
30 PUT "FILE", 60, "NAME 1", 70, "NAME 2"
40 CLOSE "FILE"
```

The GET command must be arranged as

```
100 OPEN "FILE", L40
110 ACCEPT "FILE", 20, 1
120 GET "FILE", A, B$, C, D$
130 CLOSE "FILE"
```

# CHAPTER 11

## THE COMMAND FOR YOU TO BACKUP OR TRANSFER FILES

### •DCOPY

## **DCOPY**

### **WHAT IT DOES**

DCOPY transfer a single file or all the files in a diskette from one to another.

### **HOW TO TYPE IT**

For the single file transfer, the filename should be specified.  
DCOPY "filename"

For the disk transfer, just type  
DCOPY

### **WHAT WILL HAPPEN**

The computer will ask for the user to specify the source and the destination drives, then

#### **A) For the single drive user:**

- 1) The computer will ask for the user to insert source diskette.
- 2) The IN USE light will come on on your disk drive for a few seconds
- 3) The computer will ask for the destination diskette and repeat the process until the file transfer is finished.

#### **B) For two drives user:**

The computer will do the process automatically until the file/disk transfer is finished.

#### **NOTE: :**

- 1) The DCOPY command will destroy the content of the memory, so don't forget to save your program before using the DCOPY command.
- 2) NEVER use RESET to stop DCOPYing. Use CTRL-C instead.

## **CHAPTER 12**

### **STUFF TO KEEP IN MIND ABOUT DOS COMMAND**



## **STUFF TO KEEP IN MIND ABOUT DOS COMMANDS**

### **WHICH COMMANDS WORK ONLY WITH BASIC PROGRAMS**

- 1) LOAD
- 2) RUN
- 3) SAVE

### **WHICH COMMANDS WORK ONLY WITH DATA FILES**

- 1) OPEN
- 2) CLOSE
- 3) PR#
- 4) IN#
- 5) WRITE
- 6) PUT
- 7) ACCEPT
- 8) GET

### **WHICH COMMANDS WORK WITH BOTH**

- 1) INIT
- 2) REN
- 3) DIR
- 4) ERA
- 5) STATUS

### **WHICH COMMANDS WORK WITH NEITHER**

- 1) BSAVE
- 2) BLOAD
- 3) BRUN

### **THESE WORK ONLY WITH BINARY PROGRAMS**

### **WHICH DATA FILE COMMANDS ONLY WORK INDIRECTLY**

- 1) OPEN
- 2) PR#
- 3) IN#
- 4) WRITE
- 5) PUT
- 6) ACCEPT
- 7) GET

### **THEY MUST BE USED FROM WITHIN BASIC PROGRAMS**

### **WHICH DATA FILE COMMAND WORK DIRECTLY**

- 1) CLOSE

### **THESE CAN BE USED IN A PROGRAM OR DIRECTLY**

### **WHICH COMMAND BACK UP FILES**

- 1) DCOPY

# CHAPTER 13

## HANDY LIST OF ALL DOS COMMANDS

In alphabetical order with short description and reference page number.

## HANDY LIST OF ALL DOS COMMANDS

- ACCEPT: Prepare the system to read data from a random access file.  
P.58
- BLOAD: To return the contents of a binary file to the computer's memory.  
P.42
- BRUN: Load the binary file from disk and execute.  
P.43
- BSAVE: Store the content of a segment of memory on disk. i.e., to save a Binary file on disk.  
P.40
- CLOSE: Close an open file, i.e., to conclude I/O to a disk file.  
P.53
- DCOPY: Copy file from one disk to another.  
P.61
- DIR: To see what is store in disk.  
P.27
- DRIVE: Select either drive 1 or drive 2.  
P.35
- ERA: Erase a file from disk.  
P.38
- GET: Get data from the random access file in the disk.  
P.59
- IN#: Read the sequential data file from disk.  
P.55

**INIT:** Prepare a disk to accept disk files by initializing  
**P.25** the directory, file allocation table, system loader and disk operating system.

**LOAD:** Load a program file from disk into memory.  
**P.29**

**OPEN:** Allocates a memory buffer to the text file, and  
**P.50** prepares the system to write or read to the file.

**PR#:** Output the data to the data file in the disk.  
**P.54**

**PUT:** Output data to the random access file in the  
**P.57** disk.

**REN:** Change the name of a disk file.  
**P.37**

**RUN:** Load and run a program file from disk.  
**P.30**

**SAVE:** Save a program file on disk.  
**P.32**

**STATUS:** Show the free space in the disk.  
**P.33**

**WRITE:** Prepare the system to write data to a random  
**P.56** access file.